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Fluid channels of upward deep solutions migration in dense carbonate rocks of Bashkirian stage

Korolev E., Eskin A., Statcenko E., Plotnikova I.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

Fluid dynamic channels of deep solutions upward migration in dense carbonates of the Bashkirian stage oil reservoirs have been investigated. The morphological features of the structure of channels penetrating dense carbonate rocks have been reviewed. In all cases the fluid dynamic channels in limestone have a central cylindrical bore, from which rare side branches run. The communicating cavities are observed around the channels. The hollows of channels and cavities surrounding them are partially or completely healed with authigenous calcite doped with dolomite. Nature and sequence of structure transformations of fluid dynamic channels voids are due to changes in the composition of fluids under the influence of the oxidation products of hydrocarbons. There are two development stages of the channels: 1) formation of cylindrical channel on account of the processes of carbonate rocks dissolution; 2) mudding (healing) of channels' voids with authigenous calcite. Adjusted fluid dynamic channels in dense rocks provide the possibility of vertical flow for water-oil fluids during the formation of oil deposits.

Keywords

Fluid dynamic channels, Fluids, Limestone, Migration, Oil, X-ray tomography